What Is Claimed Is:

1. A method for supporting read-only objects within an object-addressed memory hierarchy, comprising:

receiving a request to access an object, wherein the request includes an object identifier for the object that is used to reference the object within the object-addressed memory hierarchy;

using the object identifier to retrieve an object table entry associated with the object;

if the request is a write request,

examining a read-only indicator within the object table entry,

if the read-only indicator specifies that the object is a read-only object, performing a corrective action to deal with the fact that the write request is directed to a read-only object.

2. The method of claim 1, wherein if the request is a read request, the method further comprises using a physical address from the object table entry to access the object in main memory.

3. The method of claim 1, wherein performing the corrective action can involve causing a fault handler in the requesting processor to perform the corrective action.

4. The method of claim 1, wherein performing the corrective action can involve:

obtaining a writable copy of the object, clearing the read-only indicator to indicate that the object is no longer read-only, and updating the writable copy of the object with data from the write request;

updating a remotely located master copy of the object with data from the write request;

terminating the requesting process because the write request is not allowed; and

if the request is directed to a debugging breakpoint, pausing the requesting process and clearing the read-only indicator.

5. The method of claim 1, wherein the request to access the object is received at a translator that translates between object identifiers (used to reference objects in an object cache) and physical addresses (used to address objects in main memory).

6. The method of claim 5,

wherein prior to receiving the request at the translator, the request is initially directed to the object cache;

wherein if the request causes a hit in the object cache, the object is accessed in the object cache and the request is not sent to the translator; and

wherein if the request causes a miss in the object cache, the request is sent to the translator.

7. The method of claim 6, further comprising making a given object read-only by:

setting a read-only indicator associated with the given object to indicate that the given object is read-only;

causing all object caches within a local cache-coherent domain to flush any modified cache lines of the given object out to main memory;

whereby subsequent upgrades of the given object from read-only status to writable or modified status in any caches within the local cache-coherent domain must go through a translator.

8. The method of claim 7, wherein causing all object caches within the local cache-coherent domain to flush any modified cache lines of the given object out to main memory involves executing a read-with-intent-to-only-read (RWITOR) instruction on each cache line of the given object.

9. The method of claim 7, wherein the given object can be made read-only in response to a request received from outside the local cache-coherent domain.

10. The method of claim 5, wherein the translator includes hardware to translate between object identifiers and physical addresses.

11. An apparatus that supports read-only objects within an object-addressed memory hierarchy, comprising:

a receiving mechanism configured to receive a request to access an object, wherein the request includes an object identifier for the object that is used to reference the object within the object-addressed memory hierarchy;

a translation mechanism configured to use the object identifier to retrieve an object table entry associated with the object; and

a corrective action mechanism, wherein if the request is a write request, the corrective action mechanism is configured to,

examine a read-only indicator within the object table entry, and

if the read-only indicator specifies that the object is a read-only object, to perform a corrective action to deal with the fact that the write request is directed to a read-only object.

12. The apparatus of claim 11, wherein if the request is a read request, the translation mechanism is additionally configured to use a physical address from the object table entry to access the object in main memory.

13. The apparatus of claim 11, wherein the corrective action mechanism is configured to cause a fault handler in the requesting processor to perform the corrective action.

14. The apparatus of claim 11, wherein performing the corrective action can involve:

obtaining a writable copy of the object, clearing the read-only indicator to indicate that the object is no longer read-only, and updating the writable copy of the object with data from the write request;

updating a remotely located master copy of the object with data from the write request;

terminating the requesting process because the write request is not allowed; and

if the request is directed to a debugging breakpoint, pausing the requesting process and clearing the read-only indicator.

15. The apparatus of claim 11, wherein the receiving mechanism and the translation mechanism reside within a translator that translates between object identifiers (used to reference objects in an object cache) and physical addresses (used to address objects in main memory).

16. The apparatus of claim 15, wherein the apparatus includes the object cache;

wherein prior to receiving the request at the translator, the request is initially directed to the object cache;

wherein if the request causes a hit in the object cache, the object is accessed in the object cache and the request is not sent to the translator; and

wherein if the request causes a miss in the object cache, the request is sent to the translator.

17. The apparatus of claim 16, further comprising a read-only configuration mechanism configured to make a given object read-only by:

setting a read-only indicator associated with the given object to indicate that the given object is read-only; and

causing all object caches within a local cache-coherent domain to flush any modified cache lines of the given object out to main memory;

whereby subsequent upgrades of the given object from read-only status to writable or modified status in any caches within the local cache-coherent domain must go through a translator.

18. The apparatus of claim 17, wherein the read-only configuration mechanism causes all object caches within the local cache-coherent domain to flush any modified cache lines of the given object out to main memory by

executing a read-with-intent-to-only-read (RWITOR) instruction on each cache line of the given object.

19. The apparatus of claim 17, wherein the read-only configuration mechanism makes the given object read-only in response to a request received from outside the local cache-coherent domain.

20. The apparatus of claim 15, wherein the translator includes hardware to translate between object identifiers and physical addresses.

21. A computer system that supports read-only objects within an object-addressed memory hierarchy, comprising:

a processor;

the object-addressed memory hierarchy;

an object cache within the object-addressed memory hierarchy;

a translator that translates between object identifiers, used to address objects in the object cache, and physical addresses, used to address objects in main memory;

a receiving mechanism within the translator configured to receive a request to access an object, wherein the request includes an object identifier for the object that is used to reference the object within the object-addressed memory hierarchy;

a translation mechanism within the translator configured to use the object identifier to retrieve an object table entry associated with the object; and

a corrective action mechanism, wherein if the request is a write request, the corrective action mechanism is configured to,

examine a read-only indicator within the object table entry, and

if the read-only indicator specifies that the object is a read-only object, to perform a corrective action to deal with the fact that the write request is directed to a read-only object.